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EXAMINER
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ART UNIT	PAPER NUMBER
2109	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/767,593	CHRON ET AL.	
	Examiner	Art Unit	
	Shirley X. Zhang	2109	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01/29/2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01/29/2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *01/29/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This non-final office action is responsive to application No. 10/767593 filed on 01/29/2004.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 01/29/2004 was filed with the original application. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner is considering the information disclosure statement.

Drawings

The drawings are objected to because of the following informalities.

Figure 4 fails to label the arrows branching off the decision boxes 22, 24, 27 and 29 with the word "Yes" or "No".

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. **Claims 1-8, 10-13, 16-18 and 23** are rejected under 35 U.S.C. 102(b) as being anticipated by Baker et al. ("The Mirage NFS Router", a technical report published by University of Arizona in 2002, hereinafter "**Baker**").

As to claim 1, Baker teaches a communications network comprising:

at least one communication virtualizer (Figure 1 and Section 1 "Introduction" disclose that the Mirage Router virtualizes NFS servers and therefore is a communication virtualizer);

a plurality of network-attached store computers connected to said communication virtualizer (Figure 1 and Section 1 "Introduction" disclose that the NFS servers are network-attached store computers),

wherein said plurality of network-attached store computers are configured to appear as a single available network-attached store computer (Section 1 "Introduction" on page 1, column 2, paragraph 3 discloses that the Mirage Router implements a virtual server abstraction that is

perceived by the client as a single NFS server but is in fact the aggregation of multiple NFS servers); and

at least one client computer connected to said communication virtualizer (figure 1 on page 1 discloses that the Mirage Router is a communication virtualizer and multiple clients, e.g., "client #1", "client #2" and "client #3", are connected to the Mirage Router over Internet).

As to claim 2, Baker teaches the communications network of claim 1, further comprising an internal network of connection nodes connecting said communication virtualizer with said network-attached store computers (figure 1 on page 1 discloses an internal network that connects a Mirage Router, i.e., the communication virtualizer, to a plurality of NFS servers, i.e., the network-attached store computers).

As to claim 3, Baker teaches the communications network of claim 1, further comprising a plurality of external network connections for facilitating a transfer of requests sent by said client computer to said communication virtualizer (figure 1 on page 1 discloses that the clients are connected to a Mirage Router over Internet, where the Internet inherently consists of a plurality of external network connections).

As to claim 4, Baker teaches the communications network of claim 1, further comprising a plurality of external connection paths for facilitating direct communication between said network-attached store computers and said client computer (Figure 1 and Section "Introduction" on page 1 column 1 discloses that Mirage Router is an NFS router that operates by routing client requests to the appropriate servers and routing replies back to the appropriate clients, over a plurality of external connection paths; Section 1 "Introduction" on page 2 further discloses that the Mirage router is designed to run on a programmable network router, therefore Mirage

facilitates direction communication between said NFS servers and the clients when it functions as a router).

As to claim 5, Baker teaches the communications network of claim 1, further comprising an Ethernet networking hardware and medium access protocol for facilitating communication within said communication network (Section 6 "Performance" on page 10 discloses that a benchmark system includes three computers interconnected over 100 Mbs Ethernet, and 802.3 is the medium access protocol for Ethernet).

As to claim 6, Baker teaches the communications network of claim 1, further comprising a Transmission Control Protocol / Internet Protocol suite for facilitating communication between said network-attached store computers and said client computer (section 5 "Implementation" on page 9 discloses that one version of the Mirage Router is implemented as a module that sits on top of the UDP module in Linux kernel, therefore it is inherent that the Mirage Router comprises a TCP/IP suite).

As to claim 7, Baker teaches the communications network of claim 1, further comprising a storage access protocol for facilitating communication between a storage component within said communications network and remaining components within said communications network (Section 1 "Introduction" on page 1 discloses that Network File System (NFS) protocol is used as the storage access protocol for facilitating communication between the NFS servers and clients).

As to claim 8, Baker teaches the communications network of claim 7, further comprising a storage access protocol that comprises a Network File System protocol (Section 1

"Introduction" discloses that Network File System (NFS) protocol is used as the storage access protocol).

As to claim 10, Baker teaches the communications network of claim 1, wherein said communication virtualizer comprises a network router (section 1 "Introduction" on page 2 discloses that Mirage is designed to run on a programmable network router, therefore Mirage comprises a router).

As to claim 11, Baker teaches the communications network of claim 1, further comprising a communication virtualizer file switch connected to a client computer and a server computer for sending requests from said client computer to said network-attached store and from said network-attached store back to said client computer (the first sentence of section 1 "Introduction" on page 1 discloses that the Mirage Router is an NFS router that operates by routing client requests to the appropriate NFS servers, and routing replies back to the appropriate clients).

As to claim 12, Baker teaches a method of communication over a communications network (Fig. 1 discloses a communications network comprising the internet, the Mirage Router and the Internal Network"), said method comprising:

sending requests for storage originated by at least one client computer over said communications network (section 1 "Introduction" on page 2, paragraph 2 discloses that the clients send NFS requests to the Mirage Router over the internet);

receiving said requests for storage in at least one communication virtualizer (section 1 "Introduction" on page 2, paragraph 2 disclose that NFS requests from the clients are delivered to the Mirage Router, therefore the Mirage Router receives the said requests); and

transmitting the received requests for storage to a plurality of network-attached store computers connected to said communication virtualizer (Section 1 "Introduction" on page 2, column 1, paragraph 2 discloses that Mirage Router forwards the requests to the appropriate NFS servers, i.e., a plurality of network-attached store computers)

wherein said plurality of network-attached store computers are configured to appear as a single network-attached store computer (Section 1 "Introduction" on page 1, column 2, paragraph 3 discloses that the Mirage Router implements a virtual server abstraction that is perceived by the client as a single NFS server but is in fact the aggregation of multiple NFS servers).

As to claim 13, Baker teaches the method of claim 12, wherein said communication virtualizer, upon receiving requests from said client computer, transmits said requests for storage to a chosen network-attached store computer based on a capability of said chosen network-attached store computer to properly process said request for storage (Section 2 "NFS" on page 3, paragraph 1 discloses that Mirage Router virtualizes the file handle and maintains a mapping between its virtual file handles and the NFS servers' physical handles, such that requests from the clients are transmitted to a chosen NFS server, i.e., a network-attached store computer, based on the said virtual handle to physical handle mapping).

As to claim 16, Baker teaches the method of claim 12, wherein said network-attached store computer (Fig. 1, servers #1, #2 or #3) is configured for:

receiving said requests for storage from said communication virtualizer (Section 1 "Introduction" on page 2, paragraph 2 discloses that the Mirage router forwards client NFS

requests to the appropriate NFS servers, i.e., the NFS servers receive the client requests from the Mirage router);

processing said request for storage; creating a corresponding response to said request for storage and sending said corresponding response to said communication virtualizer (It is by the design of NFS protocol that an NFS server processes a client's request for storage and creates a corresponding response to the said request. See RFC 1094).

packetizing said corresponding response (It is inherent that Baker's NFS servers must packetize the corresponding response, as packetization is necessary for all network applications that transmit data over the internet protocol);

Sending said corresponding response to said communication virtualizer (Section 1 "Introduction" on page 1, column 1 disclose that the Mirage Router routes corresponding replies back to the appropriate clients, which implies that the replies are sent to the Mirage router by the NFS servers).

As to claim 17, Baker teaches the method of claim 16, wherein said communication virtualizer is configured for receiving said corresponding response from said network-attached store computer; determining a chosen client computer to which said corresponding response should be routed to; and routing said corresponding response to a chosen client computer (Section 1 "Introduction" on page 1 column 1 disclose that Mirage is an NFS router that operates by routing client requests to the appropriate NFS server and routing replies back to the appropriate client).

As to claim 18, Baker teaches the method of claim 17, wherein said chosen client computer is configured for receiving said corresponding response from said communication

virtualizer (Section 1 "Introduction" on page 1 column 1 discloses that the Mirage is an NFS router that routes replies back to the appropriate client);

de-packetizing said corresponding response (it is inherent that Baker's NFS clients must de-packetize the corresponding response, as de-packetization is necessary for all network applications that receives data from the internet protocol layer); and

routing said corresponding response to an initiating application (Section 1 "Introduction" on page 1, column 1 disclose that the Mirage Router routes corresponding replies back to the appropriate clients).

As to claim 23, Baker teaches a system for facilitating communication between a client computer and a host computer, said system comprising:

means for sending requests for storage originated by at least one client computer over said communications network (figure 1 and section 1 "Introduction" on page 1 disclose that multiple clients such as "client #1", "client #2" and "client #3" send NFS requests to the Mirage Router over the internet);

means for receiving said requests for storage in at least one communication virtualizer (Figure 1 and Section 1 "Introduction" on page 1, column 1 disclose that the Mirage Router virtualizes NFS servers and therefore is a communication virtualizer; furthermore, a Mirage Router receives NFS requests from the clients); and

means for transmitting the received requests for storage to a plurality of network-attached store computers connected to said communication virtualizer (figure 1 on page 1 discloses that the Mirage Router is connected to a plurality of NFS servers over an internal network; section 1 "Introduction" on page 2, column 1, paragraph 2 further discloses that NFS requests from the

clients are delivered to the Mirage Router, which rewrites the requests and forwards them to the appropriate NFS servers),

wherein said plurality of network-attached store computers are configured to appear as a single network-attached store computer (Section 1 "Introduction" on page 1, column 2, paragraph 3 discloses that the Mirage Router implements a virtual server abstraction that is perceived by the client as a single NFS server but is in fact the aggregation of multiple NFS servers).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. **Claim 9** is rejected under 35 U.S.C. 103(a) as being unpatentable over Baker et al. as applied to claim 7, further in view of Katsurashima et al. ("NAS Switch: A Novel CIFS Server Virtualization", 2003, hereinafter "**Katsurashima**").

As to claim 9, Baker teaches the communications network of claim 7 but does not teach that the said network further comprises a storage access protocol comprising a Common Internet File System (CIFS) protocol.

However, Katsurashima teaches a CIFS server virtualization system that is functionally similar to Baker's Mirage router. The difference between Baker and Katsurashima is in the choice of storage access protocols, wherein Baker uses Network File System (NFS) while Katsurashima uses primarily CIFS.

Katsurashima does suggest that its NAS Switch can employ NFS to support NFS clients (see Katsurashima, section 6 "Discussion – NFS (Network File System) Support"), in which case the NAS switch is functionally identical to Baker's Mirage Router.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Baker's Mirage Router with Katsurashima's teaching so that the network comprises a storage access protocol comprising a CIFS protocol. Katsurashima's teaching of a

NAS switch that virtualizes multiple CIFS or NFS servers would have been an obvious variant of Baker's Mirage router.

3. **Claims 14, 15 and 19-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker as applied to claim 12 above, further in view of IETF RFC 1094 ("Network File System Protocol Specification", version 2.0, hereinafter "**RFC 1094**") and IETF RFC 791 ("Internet Protocol", hereinafter "**RFC 791**").

As to claim 14, Baker teaches the method of claim 12.

Baker does not explicitly teach that said requests for storage are transmitted as a series of packets, each packet comprising a portion of the request for storage, and wherein each packet comprises a packet sequence number.

However, Baker teaches using NFS as the file transport protocol. RFC 1094 teaches that the NFS protocol is implemented using the Remote Procedure Call (RPC) technique, which runs over User Datagram Protocol (UDP) and Internet Protocol (IP).

RFC 791 further teaches that IP employs the fragmentation technique that segments large packets into a series of smaller packets of a size that the underlying physical medium supports, as each type of physical media has it own Maximum Transmission Unit (MTU) requirement (RFC 791, Section 2.3 "Function Description"). For instance, the MTU for Ethernet is typically 1500 bytes, while many Gigabit Ethernet devices support 9000-byte jumbo frames. RFC 791 further teaches that every smaller packet in the series carries a fragment-offset number in its IP header to mark its position in the series. In other words, NFS requests sent by a client, e.g. the file read or write requests, with sizes larger than the MTU of the physical medium (1500 bytes or smaller for internet), will be fragmented at the IP layer into a series of smaller packets to meet

the MTU requirements. The fragment-offset number in the IP header of the smaller packets is equivalent to the packet sequence number recited in the claim.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Baker and RFC 791 such that a request for storage is transmitted as a series of packets, each packet comprising a portion of the request for storage, and wherein each packet comprises a packet sequence number. At the time the invention was made, it was in the knowledge generally available to one of ordinary skill that Network File System (NFS) protocol employed IP protocol at the network layer by design, as explained above, therefore the combination of Baker and RFC 791 was inherent in Baker's choice of NFS as the file transport protocol.

As to claim 15, the combination of Baker, RFC 1094 and RFC 791 teaches the method of claim 14.

Baker does not teach but RFC 791 teaches that said packets comprising a similar request for storage are linked together using a request identifier and said packet sequence number, wherein each request for storage comprises a unique request identifier that is shared among said packets comprising said similar request (RFC 791, Section 2.3 teaches that after a large-size request is segmented into smaller fragments/packets at the IP layer, every smaller packet in the series carries two identification numbers in its IP header: the "identification" field at bytes 5 and 6 of the header, and the "fragment offset" at bytes 7 and 8 of the said header. The "identification" number is shared by all the smaller packets in the series and thus links together all packets for a request, therefore it is equivalent to the "request identifier" recited in the claim;

the "fragment offset" marks a packet's position in the series, therefore is equivalent to the "packet sequence number" recited in the claim.).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Baker and RFC 791 such that said packets are categorized from a zeroth (0th) packet to an ith packet. At the time the invention was made, it was in the knowledge generally available to one of ordinary skill that Network File System (NFS) protocol employed IP protocol at the network layer by design, therefore the combination of Baker and RFC 791 was inherent in Baker's choice of NFS as the file transport protocol.

As to claim 19, the combination of Baker, RFC 1094 and RFC 791 teaches the method of claim 15.

Baker does not explicit teach but RFC 791 teaches that said packets are categorized from a zeroth (0th) packet to an ith packet (RFC 791 discloses the fragmentation technique used by Internet Protocol (IP). The result of fragmentation is a series of packets, which can be categorized from a 0th packet to an ith packet).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Baker and RFC 791 such that said packets are categorized from a zeroth (0th) packet to an ith packet. At the time the invention was made, it was in the knowledge generally available to one of ordinary skill that Network File System (NFS) protocol employed IP protocol at the network layer by design, therefore the combination of Baker and RFC 791 was inherent in Baker's choice of NFS as the file transport protocol.

As to claim 20, the combination of Baker, RFC 1094 and RFC 791 teaches the method of claim 19.

Baker further teaches that said communication virtualizer determines which network-attached store computer to transmit said request for storage to by examining said zeroth packet in said request (Section 3.2 "Virtual Handle Mapping" on page 4 discloses that the Mirage Router virtualizes NFS servers by creating virtual file handles and routing a client request to the appropriate NFS servers via mapping the virtual file handles to the physical file handles. Therefore it is inherent that the Mirage Router must examine the zeroth packet in the said request, extract the virtual file handle, and perform the mapping to a physical handle to determine to which NFS server, i.e. network-attached store computer, it must transmit the said request).

As to claim 21, the combination of Baker, RFC 1094 and RFC 791 teaches the method of claim 19.

Baker further teaches that said client computer sends standard Ethernet packets to said communication virtualizer (Section 6 "Performance" on page 10 disclose that a benchmark system may employ 100Mbs Ethernet, therefore standard Ethernet packets are sent by the client computer).

However, Baker does not teach but RFC 791 teaches that the communication virtualizer combines a plurality of standard Ethernet packets comprising a single request for storage into a single packet comprising the request (RFC 791, Section 2.3 "Function Description" discloses that the recipient of fragmented IP packets re-assembles the fragmented packets into a single packet; In other words, the communication virtualizer's build-in IP protocol combines a series of Ethernet packets comprising a single request into a single packet; the communication virtualizer's build-in IP protocol further forwards the combined packet to the network-attached

store computer as a single Ethernet packet if the physical medium connecting the said virtualizer and the NAS computer supports larger Maximum Transmission Unit (MTU), for instance, the MTU is 9000 bytes for Gigabit Ethernet.);

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Baker and RFC 791 such that the communication virtualizer combines a plurality of standard Ethernet packets comprising a single request for storage into a single packet comprising the request. At the time the invention was made, it was in the knowledge generally available to one of ordinary skill that Network File System (NFS) protocol employed IP protocol at the network layer by design, therefore the combination of Baker and RFC 791 was inherent in Baker's choice of NFS as the file transport protocol.

As to claim 22, the combination of Baker, RFC 1094, RFC 791 teaches the method of claim 21.

Baker further teaches that said network-attached store computer sends a standard Ethernet packet to said communication virtualizer in reply to a client computer's request (Fig. 1 and Section 1 "Introduction" on page 1, column 1 and Section 6 "Performance" on page 10 together disclose that the NFS server sends replies to Mirage router over the internal network as Ethernet packets);

However, Baker does not teach but RFC 791 teaches that said communication virtualizer dividing said standard Ethernet packet into a plurality of standard Ethernet packets to send to said client computer as a response comprising multiple standard Ethernet packets (RFC 791, Section 2.3 "Function Description" discloses that IP employs the fragmentation technique that segments large packets into a series of smaller packets of a size that the underlying physical

medium supports, as each type of physical media has it own Maximum Transmission Unit (MTU) requirement; In other words, if the communication virtualizer receives from the network attached store computer as a response a single packet of large size, e.g., a jumbo Gigabit Ethernet packet of 9000 bytes, the IP protocol built into the communication virtualizer will divide said large packet into a plurality of standard 1500-byte Ethernet packets that is acceptable to the regular 100Mps Ethernet connecting the said virtualizer to client computers).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Baker and RFC 791 such that said communication virtualizer divides said standard Ethernet packet into a plurality of standard Ethernet packets to send to said client computer as a response comprising multiple standard Ethernet packets. At the time the invention was made, it was in the knowledge generally available to one of ordinary skill that Network File System (NFS) protocol employed IP protocol at the network layer by design, therefore the combination of Baker and RFC 791 was inherent in Baker's choice of NFS as the file transport protocol.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 7,174,360 Uemura et al., "Method for forming virtual network storage";

U.S. Patent 7,194,519 to Muhlestein et al., "System and method for administering a filer having a plurality of virtual filers";

U.S. Patent 7,165,096 B2 to Soltis, "Storage Area Network File System";

U.S. Patent 7,107,385 B2 to Rajan et al., "Storage Virtualization By Layering Virtual Disk Objects On a File System";

U.S. Patent 7,185,062 B2 to Lolayekar et al., "Switch-Based Storage Services";

U.S. Patent 6,606,690 to Padovano, "System And Method For Accessing A Storage Area Network As Network Attached Storage";

U.S. Patent Application Publication 2005/0114464 to Amir et al., "Virtualization Switch And Method For Performing Virtualization In The Data-Path";

U.S. Patent Application Publication 2004/0028043 to Maveli et al., "Method and Apparatus For Virtualizing Storage Devices Inside a Storage Area Network Fabric";

U.S. Patent Application Publication 2004/0233910 to Chen et al., "Storage Area Network Using A Data Communication Protocol";

U.S. Patent 7,269,696 to Muhlestein et al., "Method and apparatus for encapsulating a virtual filer on a filer";

U.S. Patent Application Publication 2002/0120763 to Miloushev, "File switch and switched file system"

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shirley X. Zhang whose telephone number is (571) 270-5012. The examiner can normally be reached on Monday through Friday 7:30am - 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Taghi Arani can be reached on (571) 272-3787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

TAGHI ARANI
PRIMARY EXAMINER
9/29/07